

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

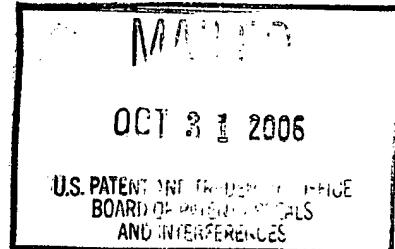
## UNITED STATES PATENT AND TRADEMARK OFFICE

### BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte DONALD ALBERT PAQUET JR., ROBERT JOHN BARSOTTI,  
LAURA ANN LEWIN, CARL BRENT DOUGLAS and MICHEAL CHARLES GRADY

Appeal No. 2006-3248  
Application No. 10/617,585

ON BRIEF



Before LEBOVITZ, ADAMS, and GREEN, Administrative Patent Judges.

LEBOVITZ, Administrative Patent Judge.

#### DECISION ON APPEAL

This appeal involves claims to curable coating compositions. The Examiner has rejected the claims as indefinite and anticipated. We have jurisdiction under 35 U.S.C. § 134. We reverse both rejections.

#### Background

Curable coating compositions are "used in automobile refinish and Original Equipment Manufacturing (OEM) applications" to coat substrate surfaces. Specification, page 1, lines 9-10. The compositions typically contain a polymer component and a crosslinking component which, when mixed together and allowed to cure, form a durable and resistant finish. Id., page 2, lines 5-6. After a surface has

been coated with the refinishing composition, it must be cured and dried. Id., page 1. Because of the presence of hazardous volatile organic solvents in the coating compositions, vented enclosures are typically utilized for the curing drying process. Id. These take up significant floor space. Id. As a consequence, "there exists a continuing need for fast curing coating formulations which cure under ambient conditions while still providing outstanding performance characteristics." Id., page 2, lines 3-5. The application describes a coating composition that cures under ambient temperatures and which has a low volatile organic content. Id., page 1, lines 11-13.

There are two grounds of rejection on appeal. Claim 5 stands rejected as indefinite. Claims 1-16, 18-21, and 26 stand rejected as anticipated.

#### Claim construction

Claims 1-16, 18-21, and 26 are on appeal. Claims 22-25 have been withdrawn from consideration pursuant to Appellants' election of species. Brief, page 1. Dependent claim 17 is also pending, but the Examiner stated that it would be allowable if rewritten to include all the limitations of independent claim 1. Final office action, page 6. We select claims 1 and 5 as representative of the groupings of claims subject to the rejections under § 102 and § 112, second paragraph, respectively.

1. A coating composition comprising crosslinkable and crosslinking components, wherein said crosslinkable component comprises:

a copolymer having on an average 2 to 25 crosslinkable groups selected from the group consisting of hydroxyl, acetoacetoxy, carboxyl, primary amine, secondary amine, epoxy and a combination thereof; a weight average molecular weight ranging from about 1000 to 4500; a polydispersity ranging from about 1.05 to 2.5; wherein said copolymer is polymerized from a monomer mixture comprising one or more non-

functional acrylate monomers and one or more functional methacrylate monomers provided with said functional groups, and

wherein said crosslinking component for said crosslinkable groups is selected from the group consisting of polyisocyanate, polyamine, ketimine, melamine, epoxy, polyacid and a combination thereof.

5. The coating composition of claim 1 wherein said non-functional acrylate monomer is provided with a non-functional group selected from the group consisting of linear C<sub>1</sub> to C<sub>20</sub> alkyl, branched C<sub>3</sub> to C<sub>20</sub> alkyl, cyclic C<sub>3</sub> to C<sub>20</sub> alkyl, bicyclic or polycyclic C<sub>5</sub> to C<sub>20</sub> alkyl, aromatic with 2 to 3 rings, phenyl and C<sub>1</sub> to C<sub>20</sub> fluorocarbon.

The coating composition comprises “crosslinkable” and “crosslinking” components. The “crosslinkable component” is a “copolymer” which contains “crosslinkable groups” and which is polymerized from non-functional acrylate monomers and functional methacrylate monomers.

The “crosslinking component” “for said crosslinkable groups” is described in the specification to have “crosslinking groups” which crosslink with the “crosslinkable groups” during the curing step to form “crosslinked structures.” Specification, page 5, lines 1-7. In other words, the two components (crosslinkable and crosslinking) recited in the claims are chemically linked together when the curing step is completed.

The crosslinking component is required by the claim to be “selected from the group consisting of polyisocyanate, polyamine, ketimine, melamine, epoxy, polyacid and a combination thereof.” The specification lists specific pairs of crosslinking components and crosslinkable groups that are generally linked together in the coating compositions. Id., page 9, line 24-page 10, line 4.

The copolymer contains “non-functional acrylate monomers” and

“functional methacrylate monomers.” The terms “non-functional” and “functional” are not expressly defined in the specification. However, claims “must be read in view of the specification, of which they are a part.’ .... [T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” Phillips v. AWH Corp., 415 F.3d 1303, 1315, 75 USPQ2d 1321, 1327 (Fed. Cir. 2005)(internal citations omitted.)

The “functional” monomers (comprising the crosslinkable component of claim 1) are described in the specification as having “functional groups” that mediate the crosslinking reaction that occurs during the curing step. See specification, page 5, lines 19-24 and page 7, lines 4-7. The skilled artisan, upon reading the specification, would understand that the crosslinking occurs via these functional groups. See id., page 5, lines 1-10 and 20-24. Thus, we interpret the phrase “functional methacrylate monomers” to refer to the presence of the functional crosslinkable groups which are crosslinked with the “crosslinking component.” Along these same lines, the phrase “non-functional acrylate monomers” is construed to refer to acrylate monomers that lack functional crosslinkable groups. Stated differently, the non-functional acrylate monomers will not be crosslinked by the crosslinking component of the composition.

#### Indefiniteness

Claim 5 stands rejected under §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject which Appellant regards as the invention.

The Examiner states that the term “non-functional” recited in claim 5 is indefinite “because the monomers cited within the Markush group contains species having various functional groups such as phenyl, fluoro, bicyclic, polycyclic, and aromatic with 2-3 rings functional groups.” Answer, Page 3.

Appellants argue that the Examiner erroneously adopted the definition of “functional groups” which is used in general organic chemistry. More properly, Appellants urge, the Examiner should have defined the term as it is understood in polymer chemistry to mean “reactive” functional groups. Brief, page 5. “Here, crosslinkable components are reactive to crosslinking components and are therefore functional because they react with the crosslinking components to form the crosslinked coating during the cure phase.” Id.

In examining the claims of an application, the PTO is permitted to adopt “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification.” In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); In re Crish, 393 F.3d 1253, 1256, 73 USPQ2d 1364, 1367 (Fed. Cir. 2004).

In light of the specification and prior art, we are persuaded by Appellants' argument that the skilled artisan would have understood “functional” to refer to the reactivity necessary to form the crosslinked coating. Brief, page 5. This construction is consistent with the specification which describes “[t]he use of non-functional acrylate monomers and functional methacrylate monomers” with respect to crosslinking.

Specification, page 6, lines 9-23. It is also consistent with our own construction of the term. We find this same meaning in the cited Barkac<sup>1</sup> patent which defines the functional groups as “capable of reacting and forming covalent bonds” with the crosslinking agent. Barkac, column 3, lines 45-52. Accordingly, this rejection is reversed.

Anticipation

Claims 1-16, 18-21, and 26 stand rejected under 35 U.S.C. § 102(b) as anticipated by Barkac.

Barkac describes a thermosetting composition comprising a polycarboxylic acid functional polymer and a beta-hydroxyalkylamide crosslinking agent. Barkac, Abstract. The polycarboxylic acid functional polymer is “prepared by atom transfer radical polymerization initiated in the presence of an initiator.” Id., column 3, lines 2-4. The polymer is a chain of M and G residues, where the M residue is free of carboxylic acid functionality and the G residue has carboxylic acid functionality. Id., column 3, lines 9-18. The M and G residues are derived from ethylenically unsaturated radically polymerizable monomers. Id. The phrase “ethylenically unsaturated radically polymerizable monomer” is “meant to include vinyl monomers, allylic monomers, olefins and other ethylenically unsaturated monomers that are radically polymerizable.” Id., column 9, lines 27-31. Preferred examples of M residues are alkyl (meth)acrylates. Id., column 9, lines 37-39. Residue G is typically derived from alkyl (meth)acrylates, preferably from C<sub>1</sub>-C<sub>4</sub> alkyl (meth)acrylates, which can be hydrolyzed after

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<sup>1</sup> Barkac et al. (Barkac), U.S. Pat. No. 6,339,126, issued Jan. 15, 2002

polymerization to prove the carboxylic acid functionality. Id., column 10, lines 26-28 and lines 54-55.

The Examiner rejects the claims over Barkac, stating that the patent discloses a polycarboxylic acid functional polymer that meets the requirements of the claims.

Barkae [sic] et al. (abstract; col. 1, line 25-50; col. 21, line 15 to col. 22, line 28) disclose a coatings composition and in example B, and Table 1, disclose a polycarboxylic acid functional polymer having Mw of 3550, and a MWD [sic] 1.25, and a crosslinking agent structure XII (col. 16, line 25-35) which comprises secondary amine structures (urethane). ... Barkae [sic] et al. (col. 9, line 32-63) clearly shows a composition comprising both a functional acrylate monomers and functional methacrylate monomers.

Answer, page 4.

Appellants argue that “[a] critical limitation in the present claims ... is that the methacrylate monomers must be functional and the acrylate monomers must be non-functional. Barkac neither teaches nor suggests this essential requirement.” Brief, page 7. They also contend that “[t]he crosslinking components of the present claims are selected from polyisocyanate, polyamine, ketimine, melamine, epoxy, and polyacid, as well as mixtures of them. ... There are no amide crosslinking components in the present claims” as required in Barkac’s composition. Id., page 8. Appellants did not challenge the Examiner’s conclusion that the composition’s other claimed characteristics were met by Barkac, i.e., number of crosslinkable groups, molecular weight, and polydispersity.

To anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim. Karsten Mfg. Corp. v. Cleveland Golf Co., 242 F.3d 1376, 1383, 58 USPQ2d 1286, 1291 (Fed. Cir. 2001).

After fully considering the record before us, it is our view that Barkac does not describe a composition that meets all the limitations of the claims.

Barkac requires the presence of a beta-hydroxyalkylamide crosslinking agent in his composition. Barkac, Abstract; column 3, line 1; column 16, lines 18-35. There is no disclosure of a crosslinking component selected from “polyisocyanate, polyamine, ketimine, melamine, epoxy, polyacid and a combination thereof” as required by claim 1. Consequently, as Appellants have urged, Barkac does not anticipate the claimed subject matter.

As a challenge to this position, the Examiner argues that Barkac teaches “a crosslinking agent structure XII (col. 16, line 25-35) which comprises secondary amine structures (urethane).” Answer, page 4. The significance of this teaching is not explained, but we infer that the Examiner intended to state that this feature met the claimed “crosslinking component” when the component contained a “polyamine.” We do not find this disclosure relevant to the claimed subject matter. The “urethane” described in Barkac is a “polyurethane” that serves as a “second polycarboxylic acid functional material” that can optionally be included in the thermosetting acrylate composition. Barkac, column 15, lines 5-10; column 16, lines 5-8. This polyurethane material is not the same acrylate polymer of Barkac that the Examiner states to anticipate the claims.

The Examiner also states that Barkac discloses a “polycarboxylic [sic] acid functional polymer comprising glycidal (epoxy) functionalities (col. 12, line 25)”, but did not explain the relevance of this disclosure to the claimed subject matter. Answer, page 4. The epoxy described by Barkac serves as an “initiator” of the polymerization

process, not as a crosslinking component which is recited in claim 1. Barkac, column 12, lines 18-30. Consequently, we do not find the epoxy to correspond to any element in claim 1.

Because the failure to meet the “crosslinking component” of claim 1 is sufficient to reverse the rejection, we do not have to address whether the copolymer component described in Barkac meets the requirements of the claimed copolymer.

For the foregoing reasons, we conclude that the Examiner has failed to provide adequate evidence to establish prima facie anticipation of the claimed subject matter. The rejection of claims 1-16, 18-21, and 26 is reversed.

REVERSED

Donald E. Jones

Donald E. Adams  
Administrative Patent Judge

Lora M. Green  
Administrative Patent Judge

Richard M. Lebovitz  
Administrative Patent Judge

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